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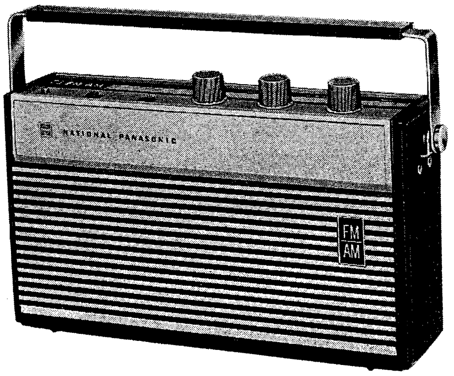
1159

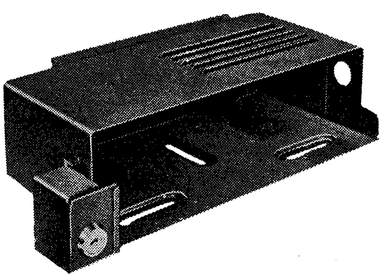
NATIONAL PANASONIC
Service Manual

ORDER NO. RD-527

FM-AM 3-BAND 9-TRANSISTOR PORTABLE RADIO

MODEL RF-893L





SPECIFICATIONS

Frequency Range:	FM(UKW) 87~108 Mc/s LW 150~300 kc/s (2000~1000 m) MW 520~1610 kc/s (577~186 m)
Intermediate Frequency:	FM 10.7 Mc/s AM (LW & MW) 455 kc/s
Transistors:	2SC645 FM RF Amplifier 2SC645 FM Converter 2SC184 FM 1st IF Amp. & AM Converter 2SC469 FM 2nd IF Amp. & AM 1st IF Amp. 2SC469 FM 3rd IF Amp. & AM 2nd IF Amp. 2SB173 1st AF Amplifier 2SB175 2nd AF Amplifier 2SB324, 2SB324 Power Amplifier (push-pull)
Diodes:	SC-15 FM AFC OA70 AM D. AGC 1S1211, 1S1211 Operation Compensator OA70, OA70 FM Ratio Detector OA70 AM Detector & AGC OA70 FM D. AGC
Sensitivity:	FM 1μV for 50mW Output 2.5μV for S/N=30 dB Quieting LW 70μV/m for 50mW Output, MW 50μV/m for 50mW Output (Portable) LW 10μV for 50mW Output, MW 10μV for 50mW Output (Car)
Power Output:	0.9 Watt Undistorted, 1.5 Watt Maximum (Portable) 1.3 Watt Undistorted, 2.3 Watt Maximum (Car)
Speaker:	10 cm (4″) PM Dynamic Speaker, 5Ω
Power Source:	6V, (Four "C" Size Flashlight Batteries) (NATIONAL UM-2 or equivalent) or Car Battery 6V/12V
Cabinet Dimensions:	265 (Wide) × 158 (High) × 67 (Deep) mm ($10\frac{7}{16}'' \times 6\frac{7}{32}'' \times 2\frac{5}{8}''$)
Weight:	1.5 kg. (3 lb. 5 oz.)

<EXPORT DIVISION>
MATSUSHITA ELECTRIC TRADING CO., LTD.
P. O. Box 288, Central Osaka, Japan

MATSUSHITA ELECTRIC INDUSTRIAL CO., LTD.
RADIO DIVISION

1159

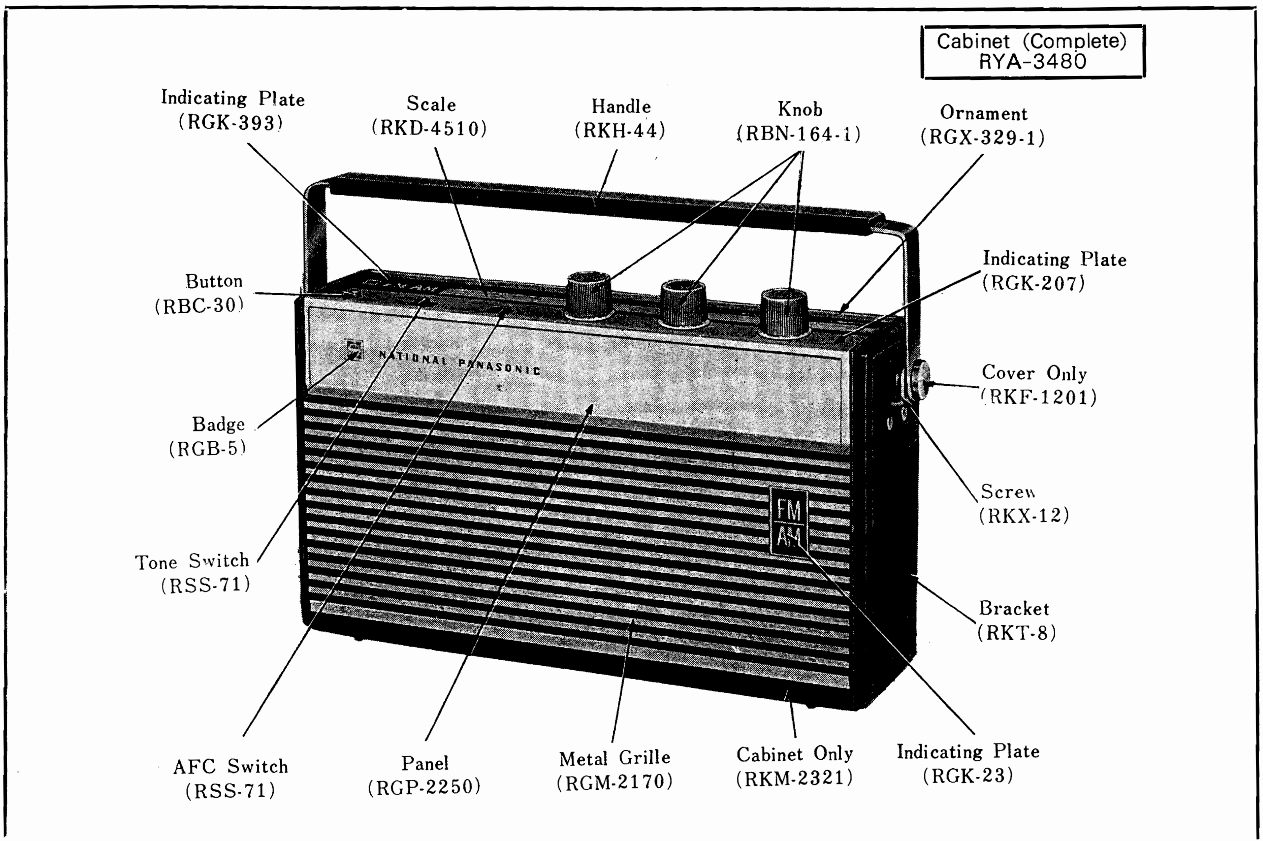

Cabinet (Complete)
RYA-3480
Indicating Plate (RGK-393)
Scale (RKD-4510)
Handle (RKH-44)
Knob (RBN-164-1)
Ornament (RGX-329-1)
Button (RBC-30)
Indicating Plate (RGK-207)
Cover Only (RKF-1201)
Badge (RGB-5)
Screw (RKX-12)
Tone Switch (RSS-71)
Bracket (RKT-8)
AFC Switch (RSS-71)
Panel (RGP-2250)
Metal Grille (RGM-2170)
Cabinet Only (RKM-2321)
Indicating Plate (RGK-23)
NATIONAL PANASONIC
FM
AM

Fig. 1 Cabinet & Appearance - Parts Identification.

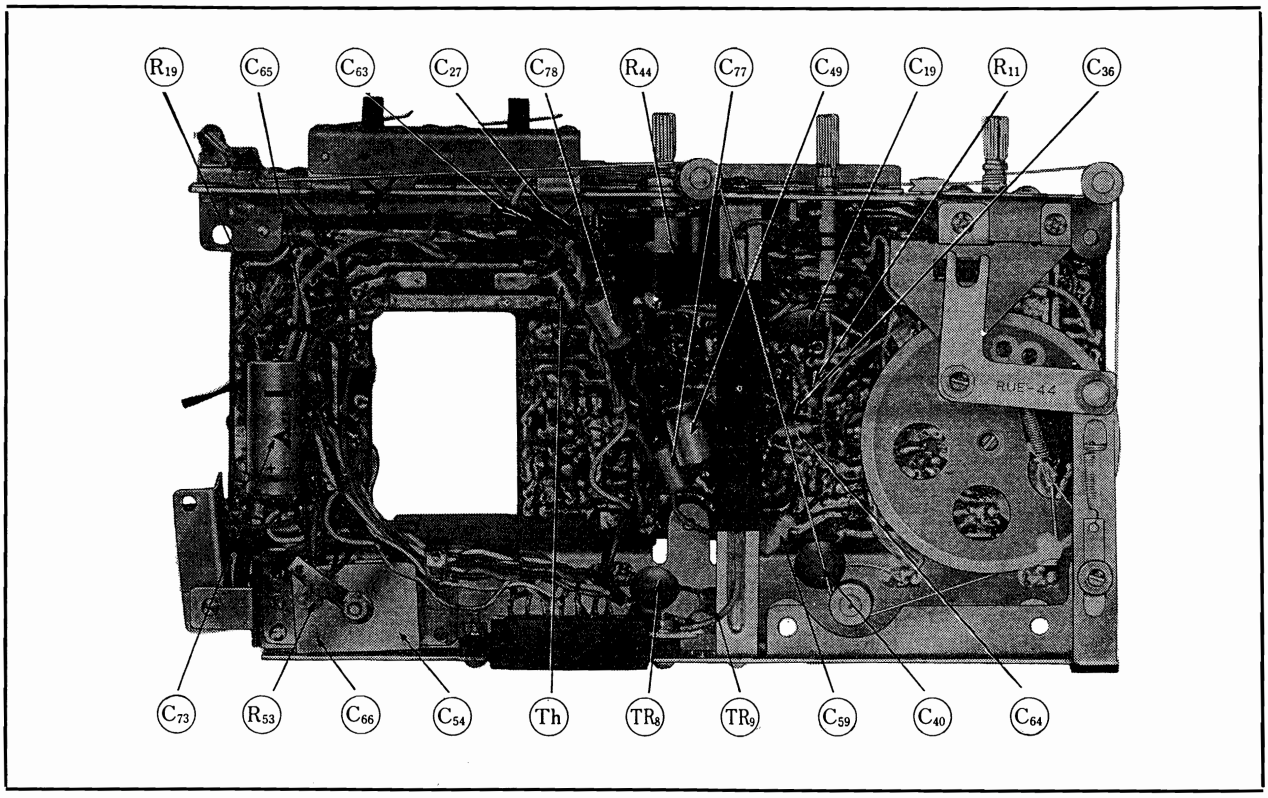

R19
C65
C63
C27
C78
R44
C77
C49
C19
R11
C36
C73
R53
C66
C54
Th
TR8
TR9
C59
C40
C64

Fig. 2 Conductor View - Parts Identification.

Resistors, Transistors & Diodes

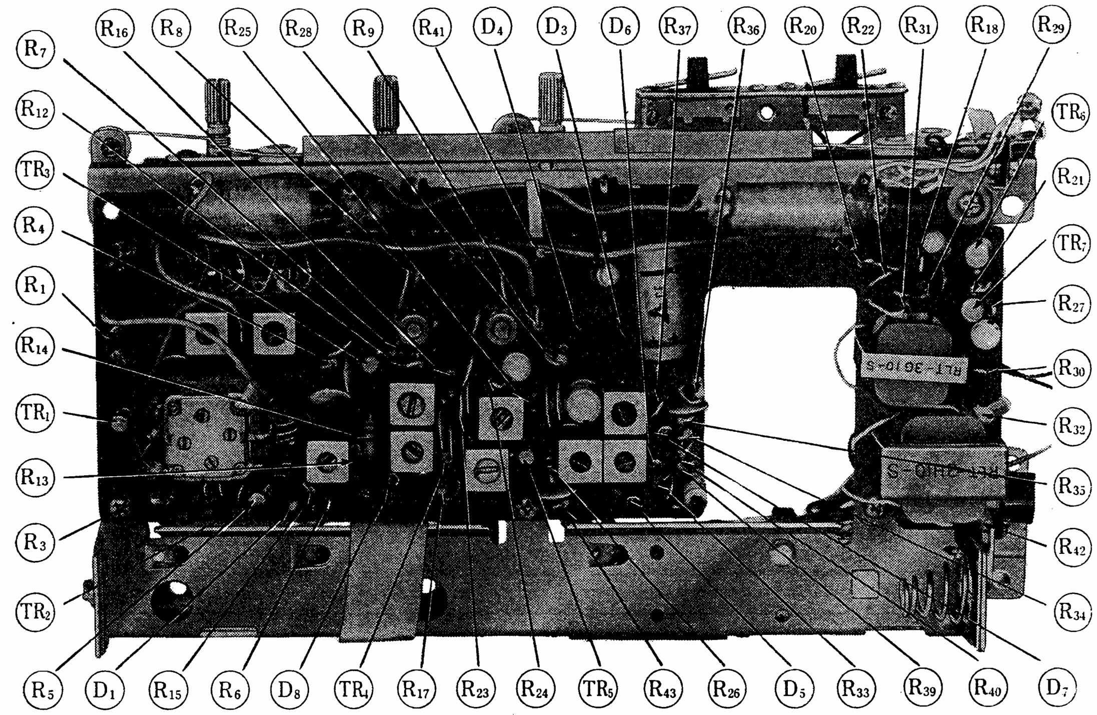

R7
R16
R8
R25
R28
R9
R41
D4
D3
D6
R37
R36
R20
R22
R31
R18
R29
R12
TR3
R4
R1
R14
TR1
R13
R3
TR2
TR6
R21
TR7
R27
R30
R32
R35
R42
R34
R5
D1
R15
R6
D8
TR4
R17
R23
R24
TR5
R43
R26
D5
R33
R39
R40
D7

Fig. 3 Component View - Parts Identification.

Capacitors, Transformers, Coils & Trimmers

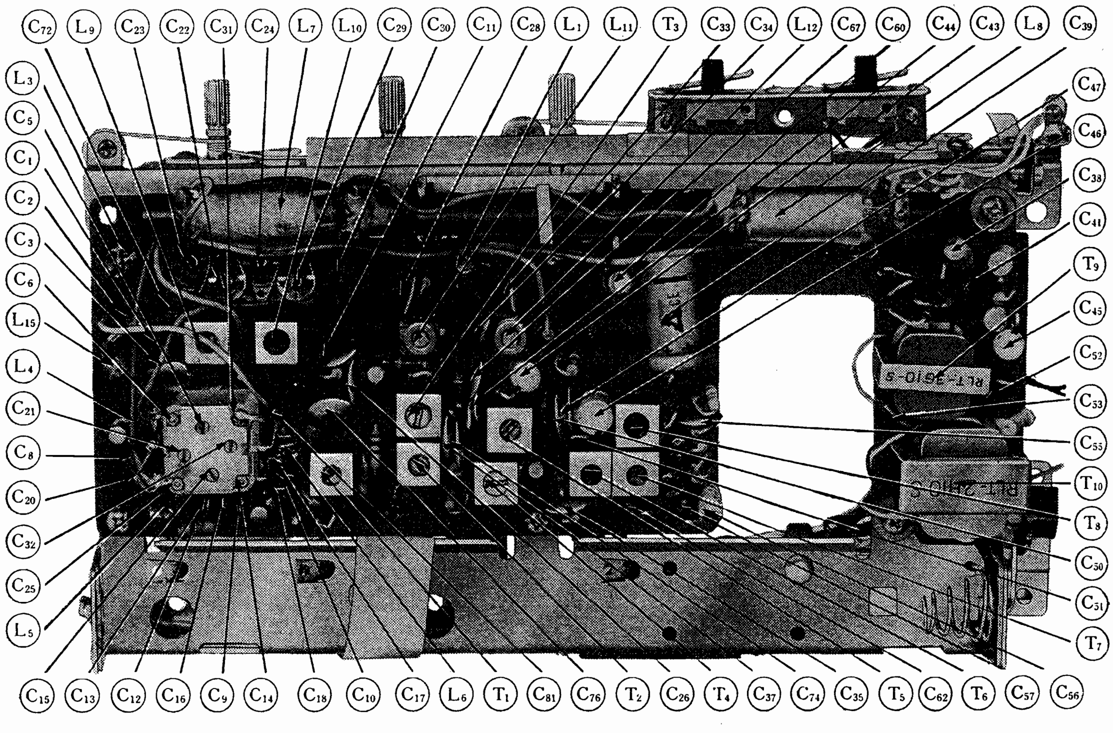

C72
L9
C23
C22
C31
C24
L7
L10
C29
C30
C11
C28
L1
L11
T3
C33
C34
L12
C67
C60
C44
C43
L8
C39
L3
C5
C1
C2
C3
C6
L15
L4
C21
C8
C20
C32
C25
L5
C47
C46
C38
C41
T9
C45
C52
C53
C55
T10
T8
C50
C51
T7
C15
C13
C12
C16
C9
C14
C18
C10
C17
L6
T1
C81
C76
T2
C26
T4
C37
C74
C35
T5
C62
T6
C57
C56

Fig. 4 Component View - Parts Identification.

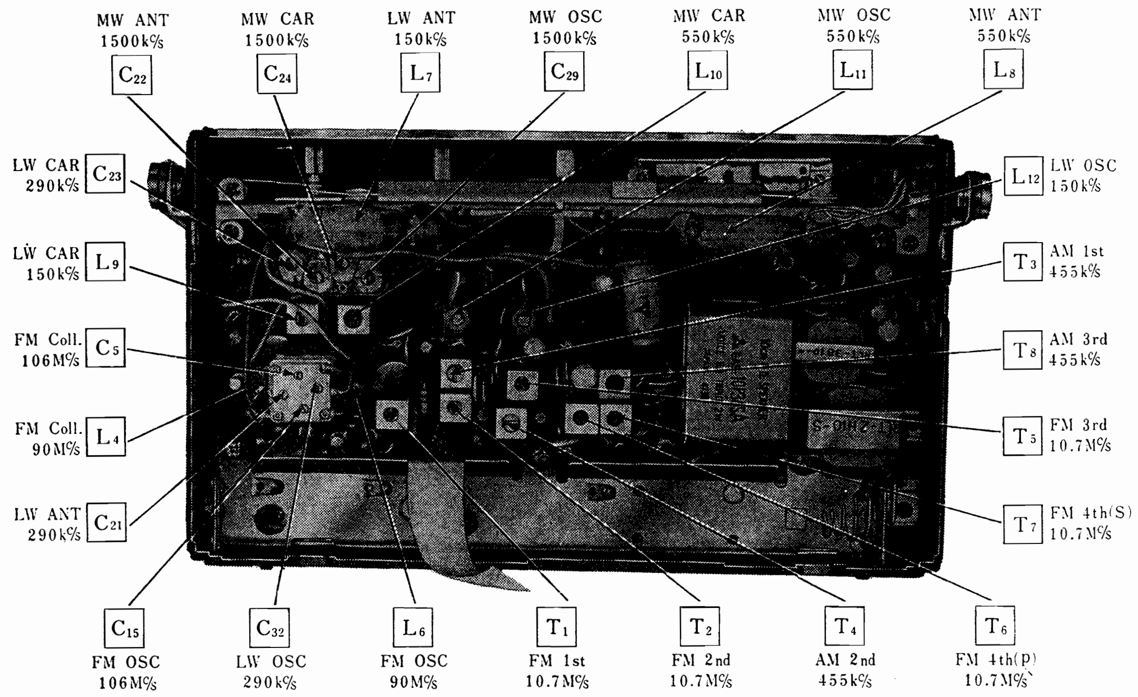
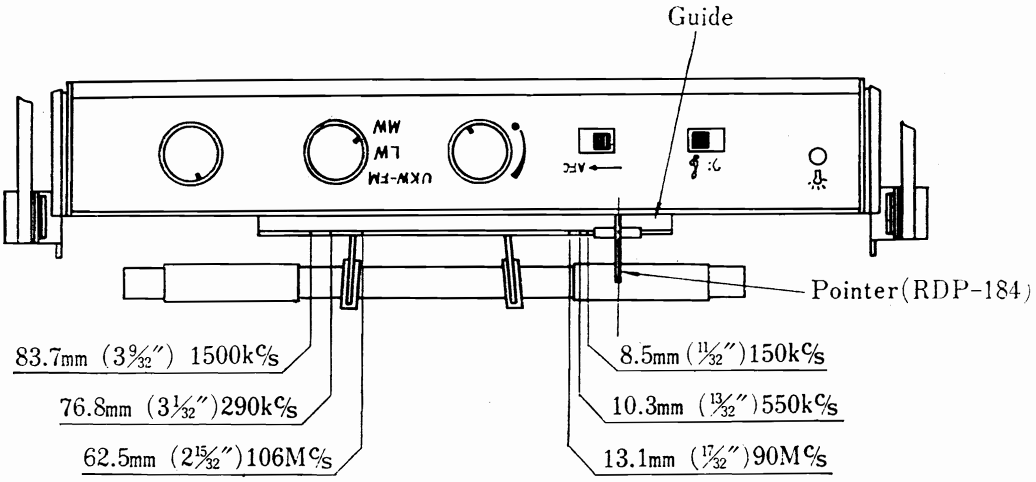

MW ANT 1500kc/s C22
MW CAR 1500kc/s C24
LW ANT 150kc/s L7
MW OSC 1500kc/s C29
MW CAR 550kc/s L10
MW OSC 550kc/s L11
MW ANT 550kc/s L8
LW CAR 290kc/s C23
LW CAR 150kc/s L9
FM Coll. 106Mc/s C5
FM Coll. 90Mc/s L4
LW ANT 290kc/s C21
L12 LW OSC 150kc/s
T3 AM 1st 455kc/s
T8 AM 3rd 455kc/s
T5 FM 3rd 10.7Mc/s
T7 FM 4th(S) 10.7Mc/s
C15 FM OSC 106Mc/s
C32 LW OSC 290kc/s
L6 FM OSC 90Mc/s
T1 FM 1st 10.7Mc/s
T2 FM 2nd 10.7Mc/s
T4 AM 2nd 455kc/s
T6 FM 4th(P) 10.7Mc/s

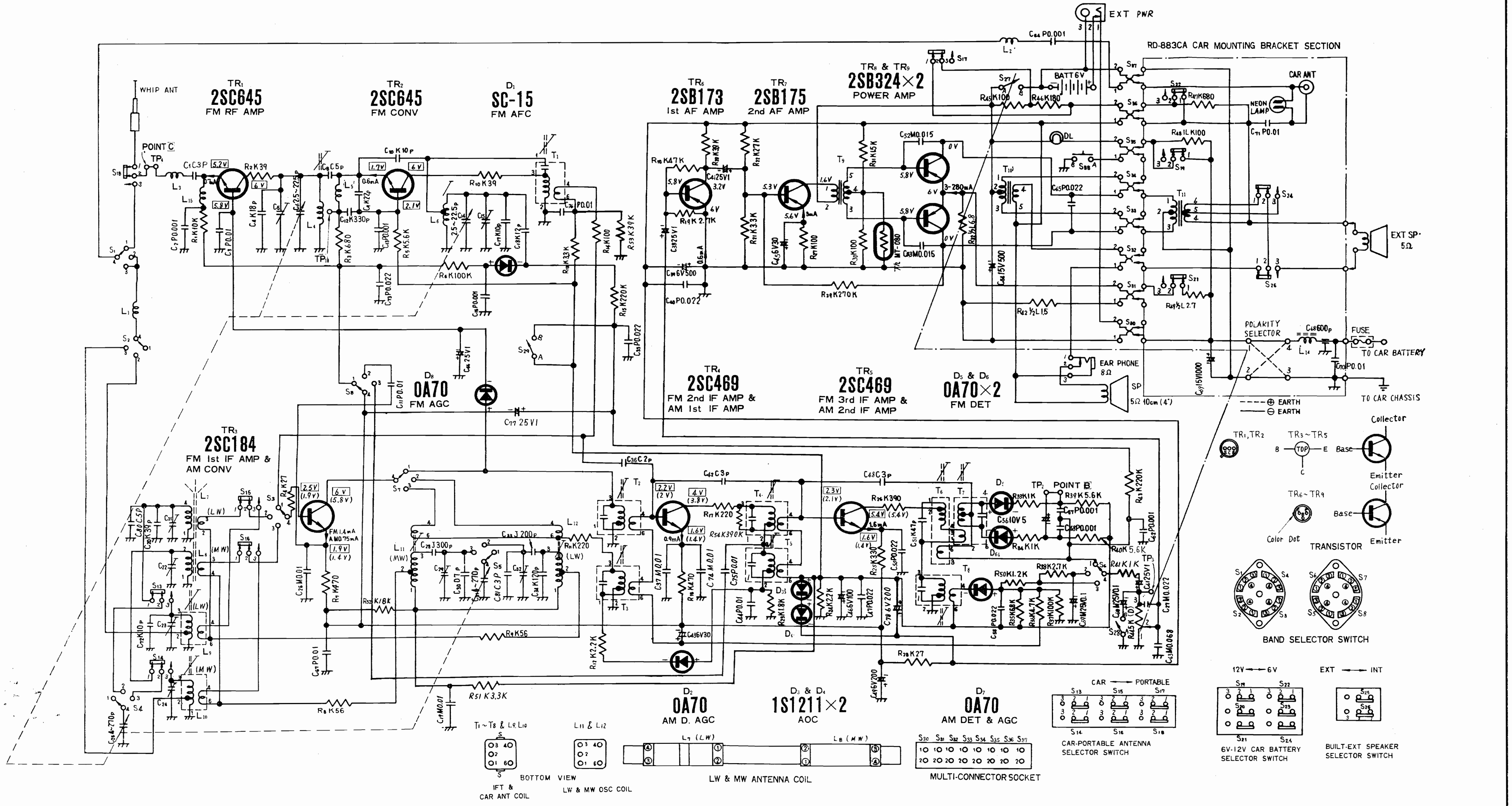
Fig. 5 Top View - Alignment Points.


Guide
MW
LW
UKW-FM
AFC
Pointer(RDP-184)
83.7mm (3 9/32″) 1500kc/s
76.8mm (3 1/32″)290kc/s
62.5mm (2 15/32″)106Mc/s
8.5mm (11/32″)150kc/s
10.3mm (13/32″)550kc/s
13.1mm (17/32″)90Mc/s

Notes :

1. Tuning gang is positioned at maximum capacity.
2. Mark each alignment point on guide plate of dial pointer with pen or pencil, and then set dial pointer to each alignment point.

Fig. 6 Frequency & Distance on Dial Scale.


EXT PWR
RD-883CA CAR MOUNTING BRACKET SECTION
WHIP ANT
POINT C
TP₁
TR₁
2SC645
FM RF AMP
TR₂
2SC645
FM CONV
D₁
SC-15
FM AFC
TR₆
2SB173
1st AF AMP
TR₇
2SB175
2nd AF AMP
TR₈ & TR₉
2SB324×2
POWER AMP
BATT 6V
CAR ANT
NEON LAMP
DL
EXT SP
5Ω
POLARITY SELECTOR
FUSE
TO CAR BATTERY
TO CAR CHASSIS
EARTH
EAR PHONE
8Ω
SP
5Ω 10cm (4")
D₈
0A70
FM AGC
TR₄
2SC469
FM 2nd IF AMP &
AM 1st IF AMP
TR₅
2SC469
FM 3rd IF AMP &
AM 2nd IF AMP
D₅ & D₆
0A70×2
FM DET
TR₃
2SC184
FM 1st IF AMP &
AM CONV
TP₂
POINT B
D₂
0A70
AM D. AGC
D₃ & D₄
1S1211×2
AOC
D₇
0A70
AM DET & AGC
TR₁, TR₂
TR₃~TR₅
TR₆~TR₉
Collector
Base
Emitter
Color Dot
TRANSISTOR
BAND SELECTOR SWITCH
T₁~T₈ & L₉, L₁₀
L₁₁ & L₁₂
BOTTOM VIEW
IFT & CAR ANT COIL
LW & MW OSC COIL
L₇ (LW)
L₈ (MW)
LW & MW ANTENNA COIL
MULTI-CONNECTOR SOCKET
CAR — PORTABLE
CAR-PORTABLE ANTENNA SELECTOR SWITCH
12V — 6V
6V-12V CAR BATTERY SELECTOR SWITCH
EXT — INT
BUILT-EXT SPEAKER SELECTOR SWITCH

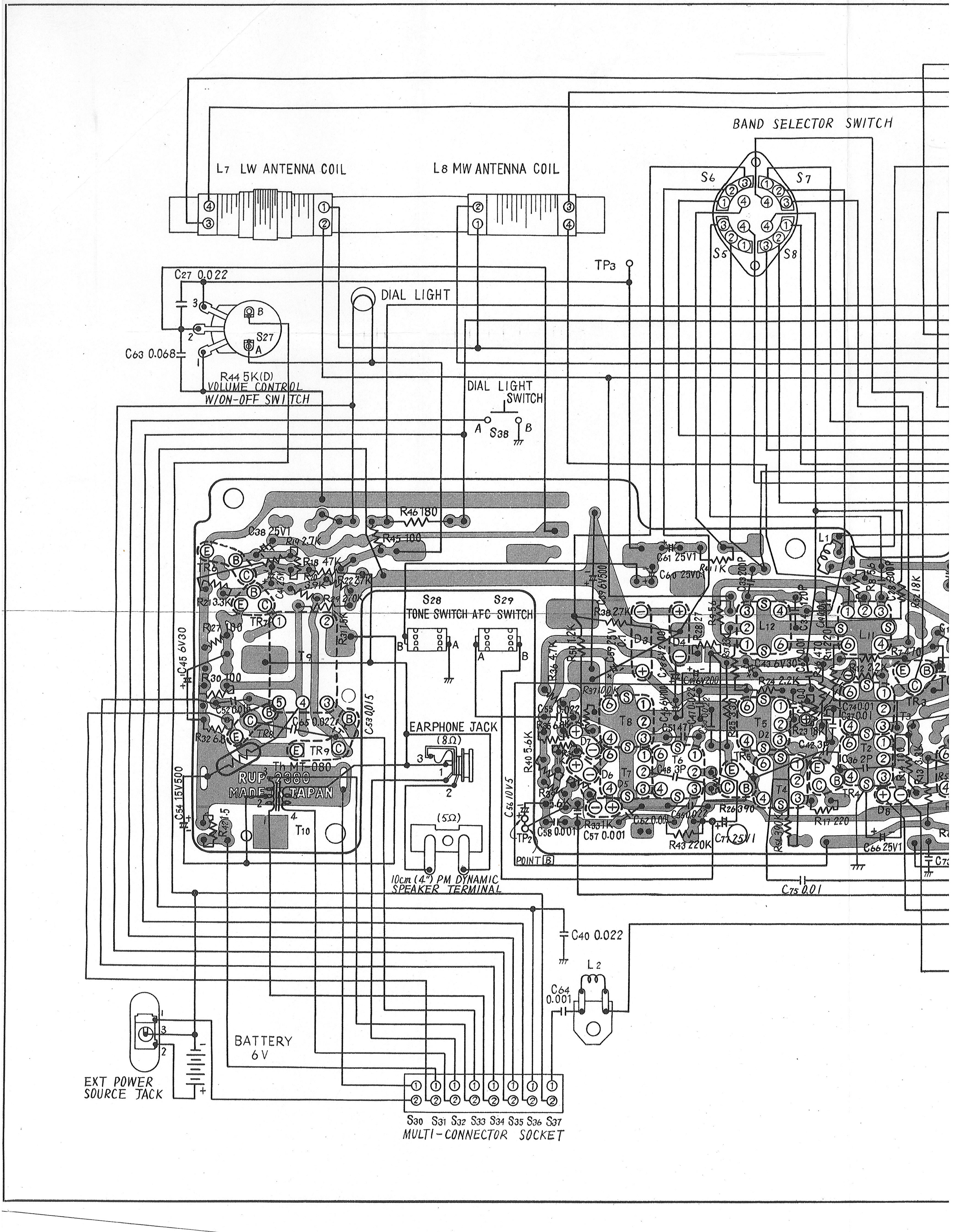
Notes:

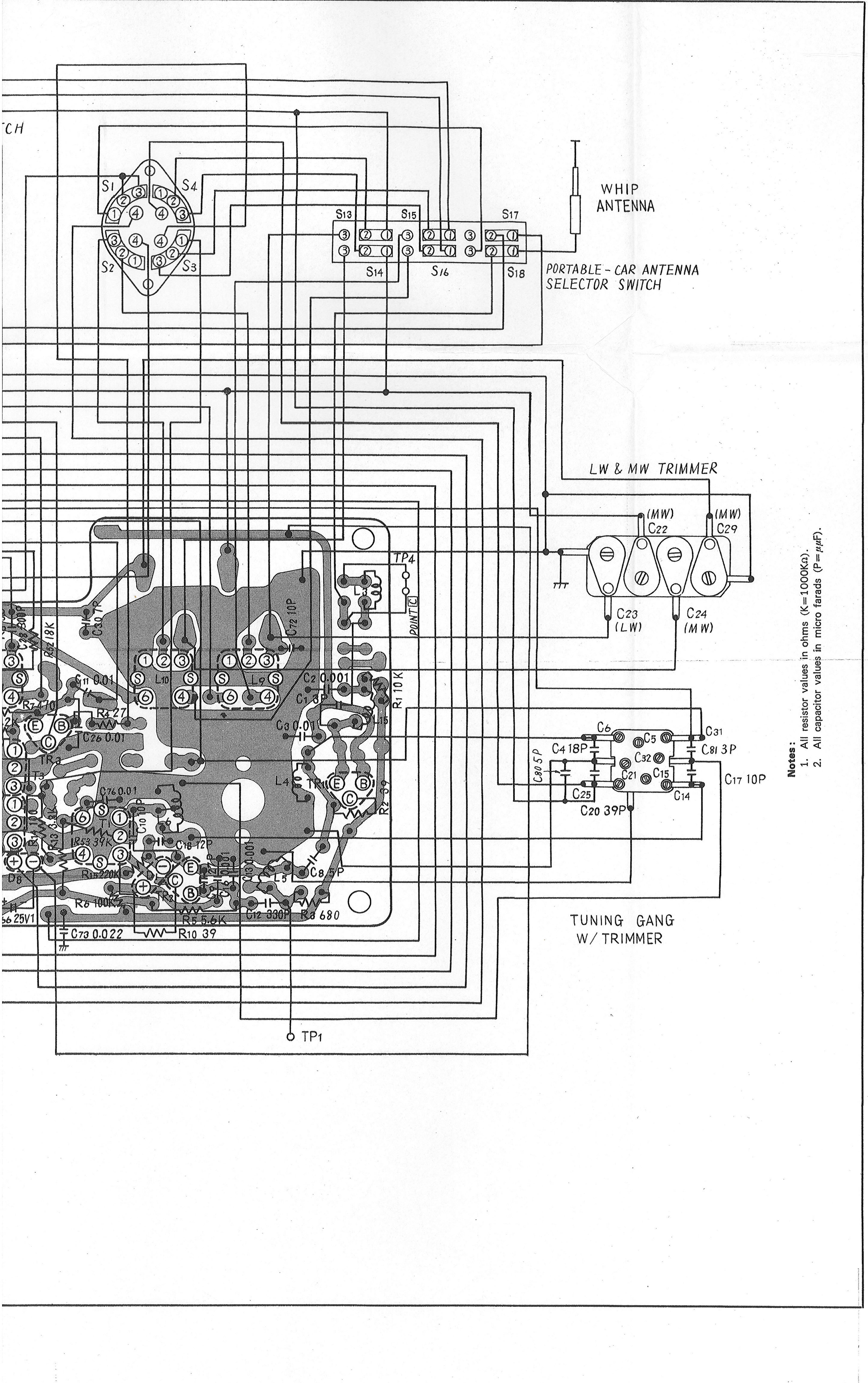
1. S_1 ~ S_8 : Band selector switch in "FM" position.
2. S_{13}~S_{18} : Portable-Car antenna selector switch in "PORTABLE" position.
3. S_{19}~S_{24} : 6V-12 car battery source selector switch in "6V" position.
4. S_{26} : Built in-EXT. Speaker selector switch in "BUILT IN" position.
5. S_{27} : Power source switch in "OFF" position.
6. S_{28} : Tone switch in "HIGH" position.
7. S_{29} : AFC switch in "ON" position.
8. S_{30}~S_{37} : Multi-connector socket.
9. S_{38} : Dial light switch in "OFF" position.
10. DC Voltage measurements are taken with circuit tester 10KΩ/Volt from negative terminal of battery.
    ☐......FM Position ( )......AM Position
11. Capital letters (J, K, M, P, C) in the circuit diagram show allowable tolerance of resistors and capacitors as follows:
    J=±5%, K=±10%, M=±20%, P=$^{+100\%}_{-0\%}$
    C=±0.25PF.
12. Battery current:

No Signal	FM, AM..............20mA	Portable	
Maximum Output	FM, AM........... 320mA		
No Signal......................95mA		Car	
Maximum Output......... 420mA			

13. PF=pico farad=mmf μF=micro farad=MF
14. All resistor values in ohms (K=1000Ω).
15. All capacitor values in micro farads (P=$\mu\mu$F).

Fig. 7 Schematic Diagram


BAND SELECTOR SWITCH
S6
S7
S5
S8
L7 LW ANTENNA COIL
L8 MW ANTENNA COIL
TP3
C27 0.022
C63 0.068
S27
R44 5K(D)
VOLUME CONTROL
W/ON-OFF SWITCH
DIAL LIGHT
DIAL LIGHT SWITCH
S38
R46 180
R45 100
S28
S29
TONE SWITCH
AFC SWITCH
C38 25V1
R19 2.7K
R18 47K
R20 3.9K
R22 27K
R29 270K
R21 3.3K
TR6
TR7
TR8
TR9
R27 100
T9
C45 6V30
R30 100
C52 0.015
C65 0.022
C53 0.015
R32 6.8
Th MT-080
RUP-2380
MADE IN JAPAN
C54 15V500
R48 1.5
T10
EARPHONE JACK
(8Ω)
(5Ω)
10cm (4") PM DYNAMIC
SPEAKER TERMINAL
C61 25V1
C60 25V0
R41 1K
C39 200P
L1
L12
L11
R38 27K
D3
D4
R28 27
R36 4.7K
R37 100K
R50 12K
C55 0.022
R35 68K
R40 5.6K
C56 10V5
T8
T7
T6
D6
D7
C48 3P
C47
C46 6V200
C43 6V30
R24 2.2K
R25 3.3K
R23 18K
R26 390
R43 220K
C71 25V1
R33 1K
C58 0.001
C57 0.001
C62 0.001
C66 0.022
TP2
POINT B
T5
T4
TR5
TR4
TR3
T3
T2
D2
D8
C34 120P
R7 470
R17 220
C74 0.01
C77 0.01
C36 2P
C66 25V1
C75 0.01
C40 0.022
L2
C64 0.001
EXT POWER
SOURCE JACK
BATTERY
6V
S30
S31
S32
S33
S34
S35
S36
S37
MULTI-CONNECTOR SOCKET


TCH
S1
S4
S2
S3
S13
S15
S17
S14
S16
S18
WHIP ANTENNA
PORTABLE-CAR ANTENNA SELECTOR SWITCH
TP4
POINT C
C30 7P
R3 18K
C72 10P
L10
L9
L3
C11 0.01
R7 470
R4 27
C26 0.01
TR3
T3
C2 0.001
C1 3P
R1 10K
C3 0.01
L15
L4
TR1
R2 39
C76 0.01
T1
C10 10P
R53 34K
C18 12P
R15 220K
TR2
C8 5P
L5
R6 100K
R5 5.6K
C12 330P
R8 680
C73 0.022
R10 39
25V1
D8
LW & MW TRIMMER
(MW) C22
(MW) C29
C23 (LW)
C24 (MW)
C6
C5
C31
C4 18P
C32
C81 3P
C80 5P
C21
C15
C25
C14
C17 10P
C20 39P
TUNING GANG W/TRIMMER
TP1

Notes:
1. All resistor values in ohms (K=1000KΩ).
2. All capacitor values in micro farads (P=μμF).

Fig. 8 Circuit Board Wiring View (Conductor Side).

ALIGNMENT INSTRUCTIONS

MW, LW IF & PORTABLE RF ALIGNMENT

Output of signal generator should be no higher than necessary to obtain an output reading.
Set volume control to maximum.
Set tone switch to high.
Set power source voltage to 6 volts DC.

	Band Switch Position	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	INDICATOR	ADJUST	REMARKS	Sensitivity for 50mW output
1		Fashion loop of several turns of wire and radiate signal into loop of receiver.	455 kc/s (400∿ Mod.)	Point of non-interference (on/about 600 kc/s)	Output meter across earphone jack. (Load 5Ω)	T_3 (AM 1st IFT) T_4 (AM 2nd IFT) T_8 (AM 3rd IFT)	Adjust for maximum output.	Refer to Fig. 9
2	MW	〃	550 kc/s (400∿ Mod.)	550 kc/s	〃	L_{11} (OSC Coil) L_8 (ANT Coil)	Adjust for maximum output by sliding coil (L_8) along ferrite core.	from ant. approx 30μV
3		〃	1500 kc/s (400∿ Mod.)	1500 kc/s	〃	C_{29} (OSC Trimmer) C_{22} (ANT Trimmer)	Adjust for maximum output. Repeat steps (2) and (3).	from ant. approx 18μV
4	LW	〃	150 kc/s (400∿ Mod.)	150 kc/s	〃	L_{12} (OSC Coil) L_7 (ANT Coil)	Adjust for maximum output by sliding coil (L_7) along ferrite core.	from ant. approx 35μV
5		〃	290 kc/s (400∿ Mod.)	290 kc/s	〃	C_{32} (OSC Trimmer) C_{21} (ANT Trimmer)	Adjust for maximum output. Repeat steps (4) and (5).	from ant. approx 18μV

Notes: 1. Cement antenna bobbin with wax after completing alignment.
2. For measurement of sensitivity, connect output meter across speaker voice coil (50mW=0.6V).

MW, LW CAR RF ALIGNMENT

Output of signal generator should be no higher than necessary to obtain an output reading.
Set volume control to maximum. Set tone switch to high.
Set power source to 7.5 volts. DC. Set portable-car antenna selector switch to Car.

	Band Switch Position	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	INDICATOR	ADJUST	REMARKS
1	MW	Connect to lead wire of ceramic capacitor, (C_{64} 0.001μF) through Car dummy Antenna. Common to chassis. (Refer to Fig. 10)	550 kc/s (400∿ Mod.)	550 kc/s	Output meter across earphone jack.	L_{10} (CAR ANT Coil)	Adjust for maximum output.
2			1500 kc/s (400∿ Mod.)	1500 kc/s	〃	C_{24} (CAR ANT Trimmer)	Adjust for maximum output. Repeat steps (1) and (2).
3	LW	〃	150 kc/s (400∿ Mod.)	150 kc/s	〃	L_9 (CAR ANT Coil)	Adjust for maximum output.
4		〃	290 kc/s (400∿ Mod.)	290 kc/s	〃	C_{23} (CAR ANT Trimmer)	Adjust for maximum output. Repeat steps (3) and (4).

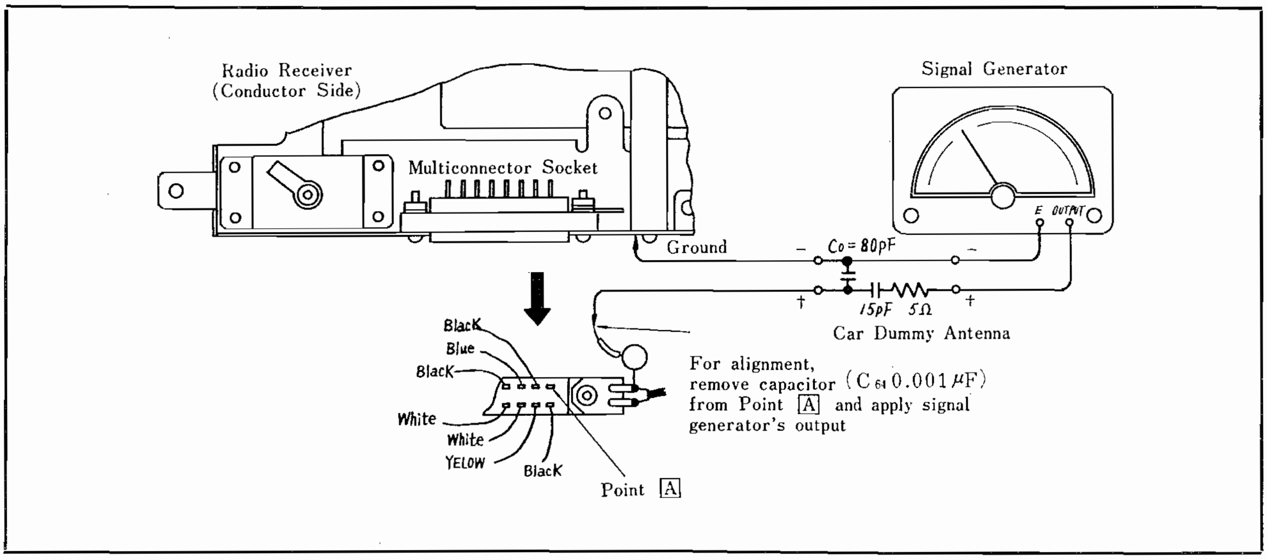
from ant
approx 100μV

from TR_3 Base
approx 3μV

from TR_4 Base
approx 18μV

from TR_5 Base
approx 700μV

Fig. 9



For alignment, remove capacitor (C_{61} 0.001μF) from Point A and apply signal generator's output

Fig. 10 Recommended Equipment Connection for MW, LW & CAR RF Alignment.

FM IF & DETECTOR ALIGNMENT WITH OSCILLOSCOPE

OSCILLOSCOPE

Set sweep selector of oscilloscope to "External Sweep". Apply 60∿ sweep signal from sweep generator to horizontal input terminals of oscilloscope.

EQUIPMENT REQUIRED

Signal generator that provides 10.7 Mc/s marker.
Sweep generator that provides 10.7 Mc/s center frequency and 400 kc/s sweep width.
Set band selector switch to FM.
Set volume control to minimum.
Set tone switch to high.
Set AFC switch to OFF.
Set power source voltage to 6 volts DC.

Note: Unsolder positive side lead of electrolytic capacitor, C_{56} 10V 5μF at point B before alignment and use it as test Point **TP**$_2$. Resolder it after alignment.

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	INDICATOR	ADJUST	REMARKS
1	High side thru. .001μF to point **TP**$_1$. Common to chassis.	High side thru. .001μF to point **TP**$_1$. Common to chassis.	Point of non-interference. (on/about 100 Mc/s)	Connect vert. Amp. of scope to point **TP**$_2$. Common to chassis.	T_1 (FM 1st IFT) T_2 (FM 2nd IFT) T_5 (FM 3rd IFT) T_6 (FM 4th IFT) (Primary)	Adjust for maximum amplitude and proper linearity between ±100 kc/s markers. (Refer to Fig. 11)
2	〃	〃	〃	Connect vert. Amp. of scope to point **TP**$_3$. Common to chassis.	T_7 (FM 4th IFT) (Secondary)	Adjust **T**$_7$ so that 10.7 Mc/s marker appears at the center. (Refer to Fig. 12)

Note: When aligning the Ratio Detector circuit, the wave form may appear as in Figs. 11 & 12 or upside-down.

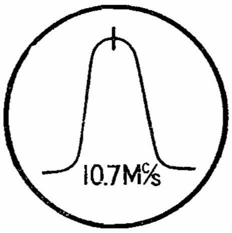


Fig. 11

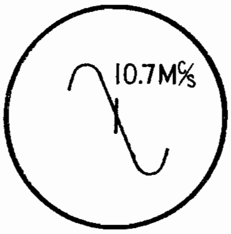


Fig. 12

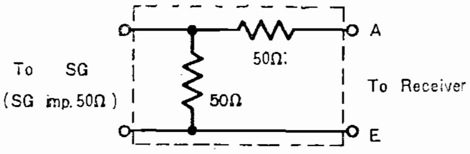

A
50Ω
To SG
(SG imp. 50Ω)
50Ω
To Receiver
E

Fig. 13 FM Dummy Antenna

FM RF ALIGNMENT

Output of signal generator should be no higher than necessary to obtain an output reading.
Set volume control to maximum.
Set band selector switch to FM.
Set AFC switch to OFF.
Set tone switch to high.
Set power source voltage to 6 volts DC.

Note : Unsolder lead between test point **TP**$_4$ and Point $\boxed{C}$ before alignment and resolder after alignment.

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	INDICATOR	ADJUST	REMARKS
3	Connect to Point **TP**$_4$ through FM Dummy antenna. Common to chassis. (Refer to Fig. 13)	90 Mc/s (400∿ Mod.)	90 Mc/s	Output meter across earphone jack (Load 5Ω)	L_6 (FM OSC Coil) L_4 (FM Collector Coil)	Adjust for maximum output.
4	〃	106 Mc/s (400∿ Mod.)	106 Mc/s	〃	C_{15} (FM OSC Trimmer) C_5 (FM Collector Trimmer)	Adjust for maximum output. Repeat steps (3) and (4).

Note : As three output responses will be present, proper tuning is the center frequency.

To Remove Chassis (Refer to Fig. 14-A & B)

1. Remove the back cover by taking off screws.
2. Remove three (3) control knobs from cabinet.
3. Remove two (2) chassis mounting screws, Nos. 1~2, as illustrated in Fig. 14-A.
4. Remove six (6) red chassis mounting screws, Nos. 1~6, as illustrated in Fig. 14-B
5. To remove chassis completely, unsolder leadwires to speaker terminals.
6. To reassemble, reverse the above procedure.

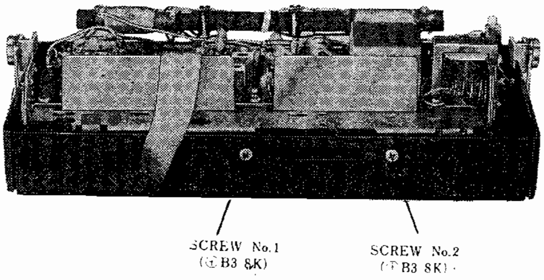

SCREW No.1
(⊕B3 8K)
SCREW No.2
(⊕B3 8K)

Fig. 14-A

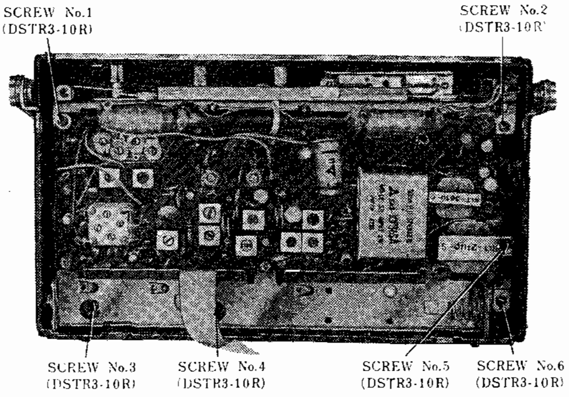
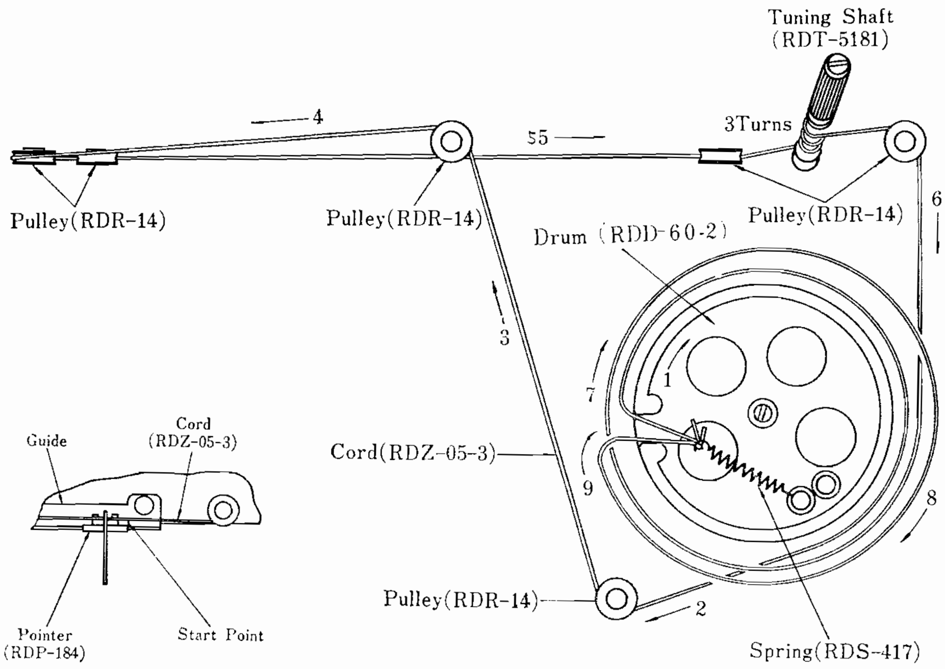

SCREW No.1
(DSTR3-10R)
SCREW No.2
(DSTR3-10R)
SCREW No.3
(DSTR3-10R)
SCREW No.4
(DSTR3-10R)
SCREW No.5
(DSTR3-10R)
SCREW No.6
(DSTR3-10R)

Fig. 14-B

Fig. 14 Top View - Disassembly Points.


Tuning Shaft
(RDT-5181)
3Turns
4
5
6
Pulley(RDR-14)
Pulley(RDR-14)
Pulley(RDR-14)
Drum (RDD-60-2)
3
1
7
Cord(RDZ-05-3)
9
8
Pulley(RDR-14)
2
Spring(RDS-417)
Guide
Cord
(RDZ-05-3)
Pointer
(RDP-184)
Start Point

Notes:

1. Dial cord length is 120cm (47¼").
3. Tuning gang is positioned at minimum capacity.
4. Arrow marks (1∼9) indicate correct order and direction of stringing dial cord.
5. Cement dial cord ends.

To Mount Dial Pointer

1. Set tuning gang to fully closed position.
2. Set dial pointer to start point of pointer guide.
3. Attach dial cord to dial pointer.

Fig. 15 Dial Cord Stringing Guide.

REPLACEMENT PARTS LIST

Notes: 1. ※ indicates parts for the complete cabinet which are included when the cabinet is ordered.
2. Parts numbers are indicated on most mechanical parts.
Please use this number, therefore, when ordering parts.

Ref. No.	Part No.	Description
	TRANSISTORS AND DIODES	
TR1	2SC645	FM RF Amplifier
TR2	2SC645	FM Converter
TR3	2SC184	FM 1st IF Amp. & AM Converter
TR4	2SC469	FM 2nd IF Amp. & AM 1st IF Amp.
TR5	2SC469	FM 3rd IF Amp. & AM 2nd IF Amp.
TR6	2SB173	1st AF Amplifier
TR7	2SB175	2nd AF Amplifier
TR8	2SB324	Power Amplifier (push-pull)
TR9	2SB324	
D1	SC-15	FM AFC
D2	OA70	AM D. AGC
D3	1S1211	Operation Compensator
D4	1S1211	
D5	OA70	FM Detector
D6	OA70	
D7	OA70	AM Detector & AGC
D8	OA70	FM AGC

Ref. No.	Part No.	Description
	THERMISTOR	
Th	MT-080	Temperature Compensator
	CAPACITORS	
C_{36}	ECM-S05020C-H	2PF, 50WV, ±0.25PF, Mica
$C_{1, 42, 48, 81}$	ECM-S05030C-H	3PF, 50WV, ±0.25PF, Mica
$C_{8, 80}$	ECM-S05050C-H	5PF, 50WV, ±0.25PF, Mica
C_{30}	ECM-S05070D-H	7PF, 50WV, ±0.5PF, Mica
$C_{10, 17, 72}$	ECM-S05100K-H	10PF, 50WV, ±10%, Mica
C_{18}	ECM-S05120K-H	12PF, 50WV, ±10%, Mica
C_{4}	ECM-S05180K-H	18PF, 50WV, ±10%, Mica
C_{9}	ECM-S05220K-H	22PF, 50WV, ±10%, Mica
C_{20}	ECM-S05390K-H	39PF, 50WV, ±10%, Mica
C_{34}	ECM-S05121K-H	120PF, 50WV, ±10%, Mica
C_{33}	ECM-S05201J-H	200PF, 50WV, ±5%, Mica
C_{28}	ECM-S05301J-H	300PF, 50WV, ±5%, Mica
$C_{52, 53}$	ECQ-M05153MZ	0.015μF, 50WV, ±20%, Polyester
C_{27}	ECQ-M05223MZ	0.022μF, 50WV, ±20%, Polyester
C_{63}	ECQ-M05683MZ	0.068μF, 50WV, ±20%, Polyester
$C_{2, 13, 16, 57, 58, 62, 64}$	ECK-D5102P	0.001μF, 500WV, +100%, Ceramic − 0%,
C_{51}	ECC-D05470K	47PF, 50WV, ± 10%, Ceramic
$C_{3, 11, 44, 67, 75, 76}$	ECK-D05103P	0.01μF, 50WV, +100%, Ceramic − 0%,
$C_{19, 26, 37, 74}$	ECK-D05103MY	0.01μF, 50WV, ± 20%, Ceramic
$C_{35, 40, 47, 50, 55, 65, 73}$	ECK-D05223P	0.022μF, 50WV, +100%, Ceramic − 0%,
C_{12}	ECC-U05331K	330PF, 50WV, ± 10%, Ceramic (Cylinder)
$C_{59, 60}$	ECA-F25VR1	0.1μF, 25WV, Electrolytic
$C_{38, 41, 61, 66, 77}$	ECE-A25V1	1μF, 25WV, Electrolytic
$C_{43, 45}$	ECE-A6V30	30μF, 6WV, Electrolytic
C_{46}	ECE-A6V100	100μF, 6WV, Electrolytic
$C_{49, 78}$	ECE-A6V200	200μF, 6WV, Electrolytic
C_{56}	ECE-B10V5	5μF, 10WV, Electrolytic
C_{39}	ECE-B6V500	500μF, 6WV, Electrolytic
C_{54}	ECE-B15V500	500μF, 15WV, Electrolytic
$C_{6, 14, 25, 31}$	PVC-2AF-4	Tuning Gang, W/Trimmer (C_{5}, C_{15}, C_{21}, C_{32})
$C_{22, 23, 24, 29}$	ECV-4RW12W13	Trimmer, MW & MW, LW Car
	RESISTORS	
R_{42}	ERW-12LK1R5	1.5Ω, ½Watt, ±10%, Wire
R_{32}	ERW-12LK6R8	6.8Ω, ½Watt, ±10%, Wire
$R_{2, 10}$	ERD-14TK 390	39Ω, ¼Watt, ±10%, Carbon
R_{14}	ERD-14TK 101	100Ω, ¼Watt, ±10%, Carbon
R_{46}	ERD-14TK 181	180Ω, ¼Watt, ±10%, Carbon
R_{11}	ERD-14TK 221	220Ω, ¼Watt, ±10%, Carbon
R_{25}	ERD-14TK 331	330Ω, ¼Watt, ±10%, Carbon
$R_{7, 16}$	ERD-14TK 471	470Ω, ¼Watt, ±10%, Carbon
R_{50}	ERD-14TK 122	1.2KΩ, ¼Watt, ±10%, Carbon
$R_{19, 38}$	ERD-14TK 272	2.7KΩ, ¼Watt, ±10%, Carbon
$R_{13, 51}$	ERD-14TK 332	3.3KΩ, ¼Watt, ±10%, Carbon
R_{5}	ERD-14TK 562	5.6KΩ, ¼Watt, ±10%, Carbon
R_{52}	ERD-14TK 183	18KΩ, ¼Watt, ±10%, Carbon
R_{53}	ERD-14TK 393	39KΩ, ¼Watt, ±10%, Carbon
$R_{4, 28}$	ERD-14VK 270	27Ω, ¼Watt, ±10%, Carbon
$R_{8, 9}$	ERD-14VK 560	56Ω, ¼Watt, ±10%, Carbon
$R_{27, 30, 45}$	ERD-14VK 101	100Ω, ¼Watt, ±10%, Carbon
R_{17}	ERD-14VK 221	220Ω, ¼Watt, ±10%, Carbon
R_{26}	ERD-14VK 391	390Ω, ¼Watt, ±10%, Carbon
R_{3}	ERD-14VK 681	680Ω, ¼Watt, ±10%, Carbon
$R_{33, 34, 41}$	ERD-14VK 102	1KΩ, ¼Watt, ±10%, Carbon
R_{31}	ERD-14VK 152	1.5KΩ, ¼Watt, ±10%, Carbon
R_{23}	ERD-14VK 182	1.8KΩ, ¼Watt, ±10%, Carbon
$R_{12, 24}$	ERD-14VK 222	2.2KΩ, ¼Watt, ±10%, Carbon
R_{21}	ERD-14VK 332	3.3KΩ, ¼Watt, ±10%, Carbon
R_{20}	ERD-14VK 392	3.9KΩ, ¼Watt, ±10%, Carbon
R_{36}	ERD-14VK 472	4.7KΩ, ¼Watt, ±10%, Carbon
$R_{39, 40}$	ERD-14VK 562	5.6KΩ, ¼Watt, ±10%, Carbon
R_{35}	ERD-14VK 682	6.8KΩ, ¼Watt, ±10%, Carbon
R_{1}	ERD-14VK 103	10KΩ, ¼Watt, ±10%, Carbon
R_{22}	ERD-14VK 273	27KΩ, ¼Watt, ±10%, Carbon
R_{18}	ERD-14VK 473	47KΩ, ¼Watt, ±10%, Carbon
$R_{6, 37}$	ERD-14VK 104	100KΩ, ¼Watt, ±10%, Carbon
$R_{15, 43}$	ERD-14VK 224	220KΩ, ¼Watt, ±10%, Carbon
R_{29}	ERD-14VK 274	270KΩ, ¼Watt, ±10%, Carbon
R_{44}	EVC-B0DL20D53	5KΩ (D), Volume Control W/ON-OFF Switch (S_{27})
R_{54}	ERD-14TK 394	390KΩ, ¼Watt, ±10%, Carbon

Ref. No.	Par. No.	Description
COILS AND TRANSFORMERS		
L_1	RLQ-X100-1	FM Choke Coil
L_2	RLQ-Y25S-2	FM Choke Coil
L_3	RLQ-Y72S-1	FM Choke Coil
L_4	RLD-4N5	FM Collector Coil
L_5	RLQ-Y72S-1	FM Choke Coil
L_6	RLO-4Y2	FM Oscillator Coil
L_7, L_8	RLF-6G8	LW, MW Antenna Coil
L_9	RLA-1C1	LW Car Antenna Coil
L_{10}	RLA-2C8-M	MW Car Antenna Coil
L_{11}	RLO-2C50	MW Oscillator Coil
L_{12}	RLO-1C4	LW Oscillator Coil
L_{15}	RLQ-Y72S-1	FM Choke Coil
T_1	RLI-4C102	FM 1st IF Transformer
T_2	RLI-4C204	FM 2nd IF Transformer
T_3	RLI-2C257-M	AM 1st IF Transformer
T_4	RLI-2C157-M	AM 2nd IF Transformer
T_5	RLI-4C203	FM 3rd IF Transformer
T_6	RLI-4C504	FM 4th IF Transformer, Primary
T_7	RLI-4C505	FM 4th IF Transformer, Secondary
T_8	RLI-2C457-M	AM 3rd IF Transformer
T_9	RLT-3G24-S	Input IF Transformer, P=5KΩ : S=2.5KΩ
T_{10}	RLT-2H10-S	Output IF Transformer, P=60Ω : S=5Ω
SPEAKER AND EARPHONE		
SP	EAS-10P36SA	10cm (4″) PM Dynamic Speaker, 5Ω
EP	EAE-1SB	Magnetic Earphone, 8Ω
SWITCHES		
$S_1 \sim S_8$	ESR-ES283L20AE	Band Selector Switch
$S_{13} \sim S_{18}$	RSS-59-1	Portable-Car Antenna Selector Switch
$S_{28,\ 29}$	RSS-71	Tone & AFC Switch
S_{38}	RSH-26	Dial Light Swich
MISCELLANEOUS		
	RVL-212-2	Dial, Light, 7.5 V 0.075A
	RJJ-7-1	Jack, EXT Power Source
	RJJ-68	Socket, Multi-Connector
	RJJ-52-2	Jack, Earphone
	RJB-6012	Insulated Plate, Battery ⊖ Side
	RJB-6013	Insulated plate, Battery ⊕ Side
	RJB-9001	Terminal, Battery ⊖ Side
	RJC-203	Terminal, Battery ⊕ Side
	RJC-601	Spring, Battery ⊖ Side
	※RUS-81	Spring, Dial Light Switch
	RUE-23	Bracket, Lever
	RUE-44	Lever, Portable-Car Antenna Selector Switch
	RMA-221	Bracket, Core Antenna M'tg.
	※RMA-263	Bracket, (Metal), Whip Antenna M'tg.
	RMS-2	Bracket, Speaker M'tg. (3 Req'd)
	RDT-5181	Shaft, Tuning
	RDD-60-2	Drum, Dial
	RDR-14	Pulley, Dial Cord (6 Req'd)
	RDY-1	Shaft (Long), Pulley
	RDY-4	Shaft (Short), Pulley (4 Req'd)
	RDY-2	Shaft, Pulley
	RDS-309	Spring, Bracket (RUE-23)
	RDS-417	Spring, Dial
	RDZ-05-3	Cord, Dial, 120cm (47¼″)
	※RKX-13-1	Screw, Handle M'tg. (2 Req'd)
	※SW-7T	Spring Washer, Handle M'tg. (2 Req'd)
	※RNW-1020	Washer, Handle M'tg. (4 Req'd)
	⊕B3-8K	Screw, Chassis M'tg. (2 Req'd)
	※⊕MS3-6K	Screw, Handle & Cabinet Back Cover M'tg. (4 Req'd)
	DSTR3-10R	Red Screw, Chassis M'tg. (6 Req'd)
	RHG-9	Rubber Cushion, Tuning Gang M'tg.
	RHG-109	Rubber Cushion, Core Antenna M'tg. (2 Req'd)
	※RBX-2	Spring, Cabinet Back Cover M'tg. (2 Req'd)
	RMY-40	Heat Sink, Transistor (TR_8 & TR_9)
APPEARANCE		
	RYA-3480	Cabinet (Complete)
	※RYF-460	Cover (Complete), Cabinet Back
	※RYM-640	Cabinet Front (Complete)

Ref No.	Part No.	Description
APPEARANCE		
	※RKM-2321	Cabinet Only, Plastic
	※RKF-1201	Cover Only, Cabinet Back
	※RKK-200	Cover Only, Battery Compartment
	※RKH-44	Handle, Cabinet
	※RKT-8	Bracket, Handle M'tg. (2 Req'd)
	※RKX-12	Screw, Handle Retaining (2 Req'd)
	※RKD-4510	Scale, Dial
	※RGP-2250	Panel
	※RGM-2170	Metal Grille
	※RGB-5	Badge, National Mark
	※RGB-33	Badge, NATIONAL PANASONIC Mark
	※RGT-1135	Name Plate
	※RGX-329-1	Ornament, Upper Side of Dial Scale
	※RGK-23	Indicating Plate, FM-AM Mark of Cabinet Front
	※RGK-207	Indicating Plate, Upper Side of Cabinet
	※RGK-393	Indicating Plate, FM-AM Mark
	RBN-164-1	Knob, Volume, Band Selector & Tuning
	※RBC-30	Button, Dial Light
	RDP-184	Pointer, Dial
	※RMA-222	Bracket (Plastic), Whip Antenna M'tg.
	RANT201-6S	Whip Antenna

CAR MOUNTING BRACKET-MODEL RD-883CA

Schematic diagram of the car mounting bracket are shown on page 5.

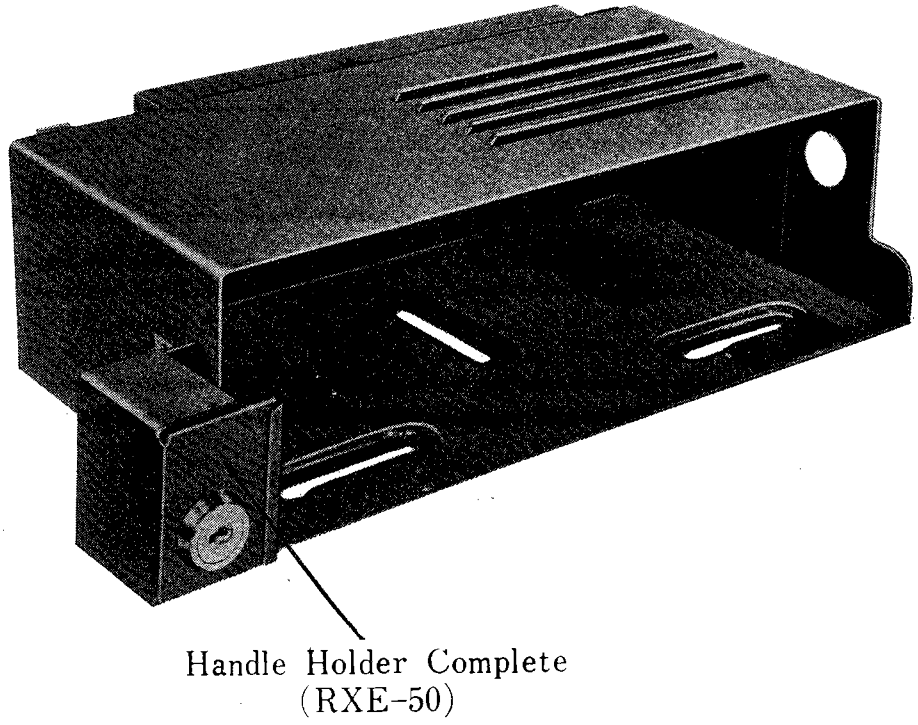


Fig. 16 Component View - Parts Identification.

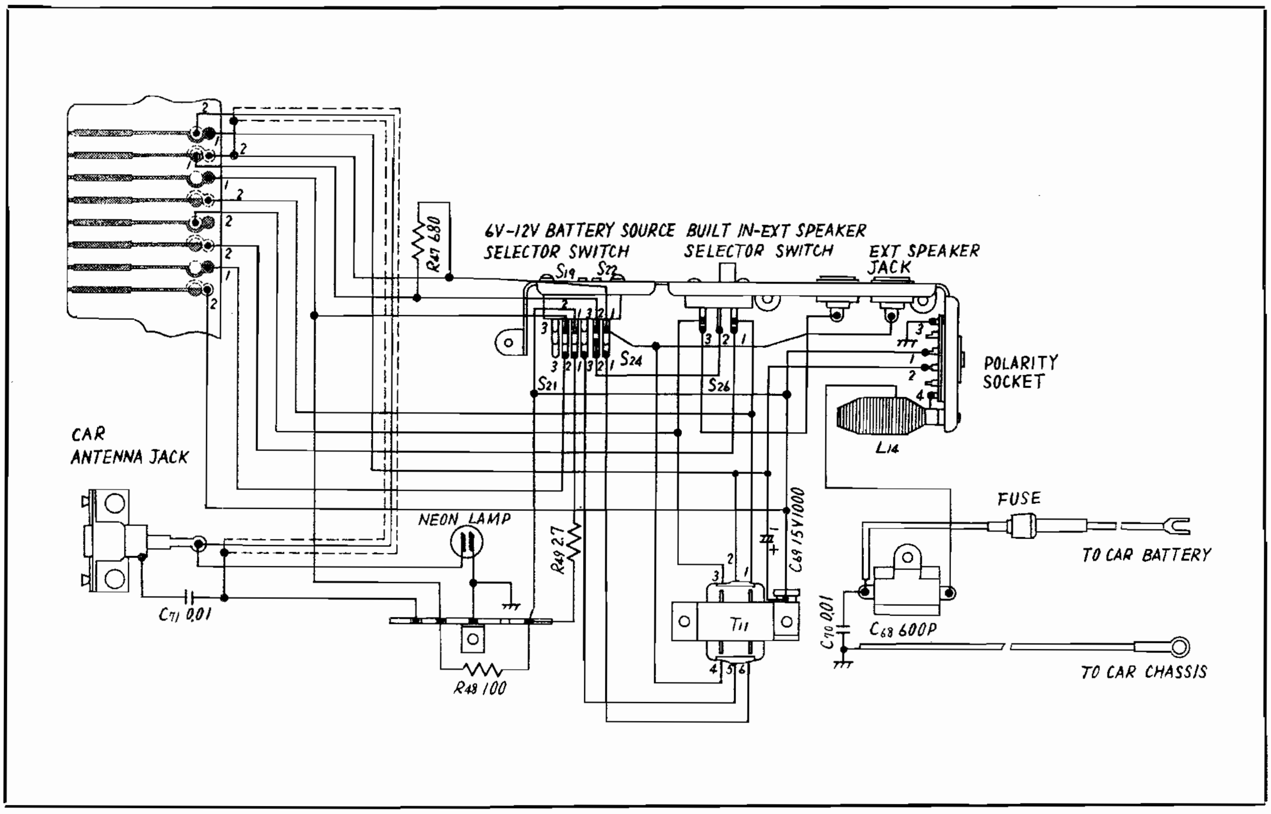

6V-12V BATTERY SOURCE SELECTOR SWITCH
BUILT IN-EXT SPEAKER SELECTOR SWITCH
EXT SPEAKER JACK
POLARITY SOCKET
CAR ANTENNA JACK
NEON LAMP
FUSE
TO CAR BATTERY
TO CAR CHASSIS
R47 680
R49 27
R48 100
C71 0.01
C69 15V1000
C70 0.01
C68 600P
T11
L14
S19
S22
S21
S24
S26

Fig. 17 Circuit Board Wiring View.

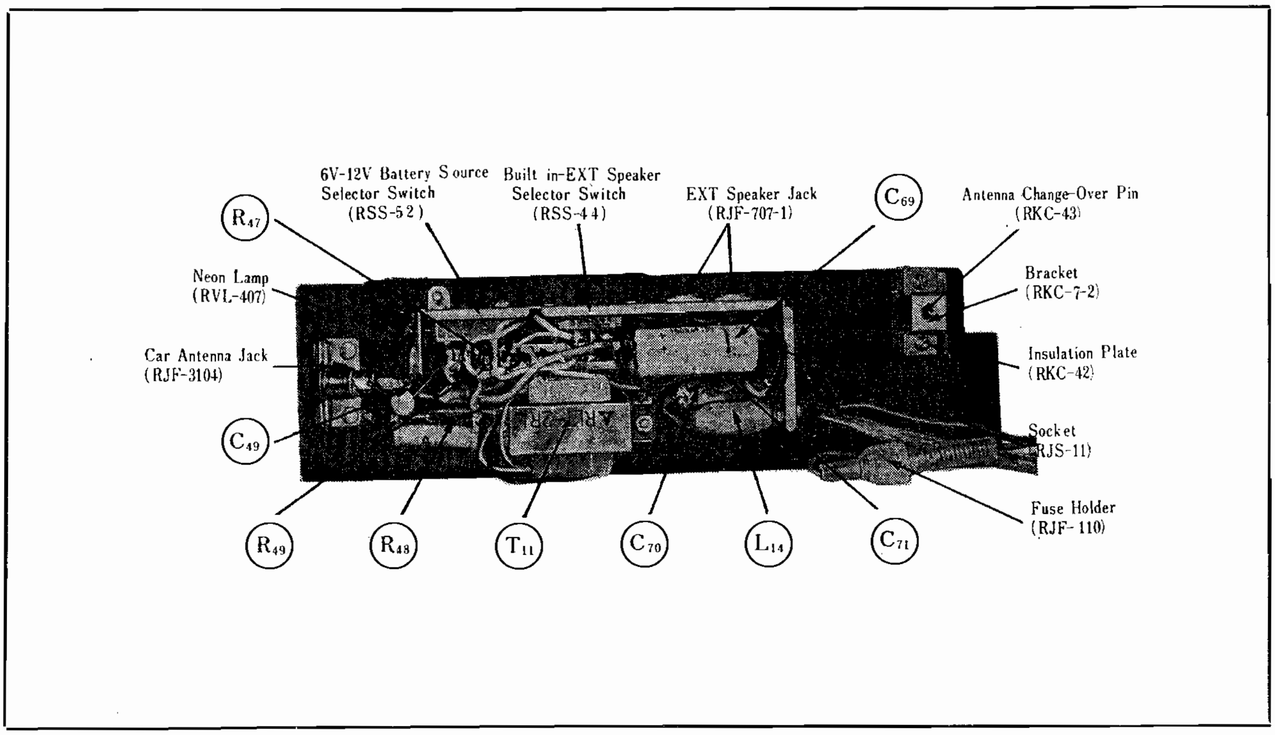

R47
6V-12V Battery Source Selector Switch (RSS-52)
Built in-EXT Speaker Selector Switch (RSS-44)
EXT Speaker Jack (RJF-707-1)
C69
Antenna Change-Over Pin (RKC-43)
Neon Lamp (RVL-407)
Bracket (RKC-7-2)
Car Antenna Jack (RJF-3104)
Insulation Plate (RKC-42)
C49
Socket RJS-11)
Fuse Holder (RJF-110)
R49
R48
T11
C70
L14
C71

Fig. 18 Component View - Parts Identification.

To Unlock The Car Bracket (Refer to Figs. 19 & 20)

1. Insert the key into the key hole and turn it fully clockwise as shown in Fig. 19.
2. Turn the handle of the radio to front of the radio dial as shown in Fig. 20. and slide radio out.

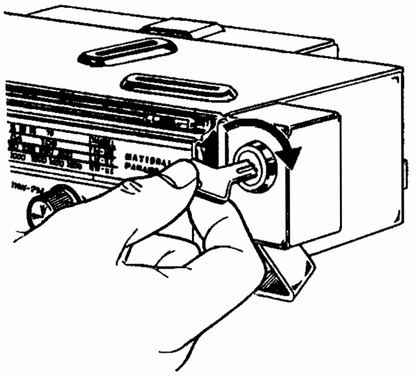


Fig. 19

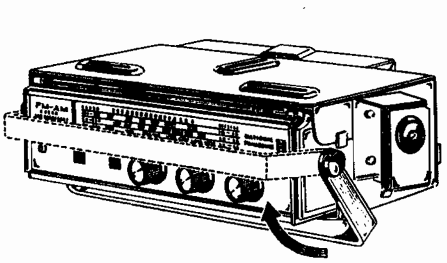


Fig. 20

Polarity of Car Battery (Refer to Fig. 21)

Car batteries are polarized in two ways. One is that the negative side is ground, and the other is positive side ground. This mounting bracket can be installed without change if negative side is ground. If your car is of the type where positive is ground, pull out the plug located on the mounting bracket, and re-insert it with an arrow pointing to the ⊕ marking (Fig. 21).

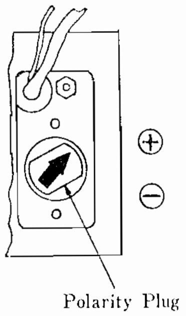

⊕
⊖
Polarity Plug

Fig. 21

To Mount Antenna Change-Over Pin

(Refer to Fig. 22)

When the Antenna change-over pin became defective or is broken, mount them as shown in Fig. 22.

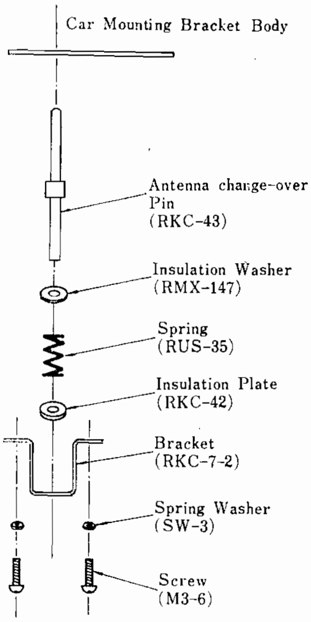

Car Mounting Bracket Body
Antenna change-over Pin (RKC-43)
Insulation Washer (RMX-147)
Spring (RUS-35)
Insulation Plate (RKC-42)
Bracket (RKC-7-2)
Spring Washer (SW-3)
Screw (M3-6)

Fig. 22

To Replace the Lock Unit

(Refer to Fig. 23)

When the mecanical troubles are caused in the lock unit, replace the whole lock unit with the handle holder by removing two (2) rivets as shown in Fig. 23. Then the handle holder comes off with the hinge. The replacement of the lock unit is included in the handle holder (Part No. RXE-50).

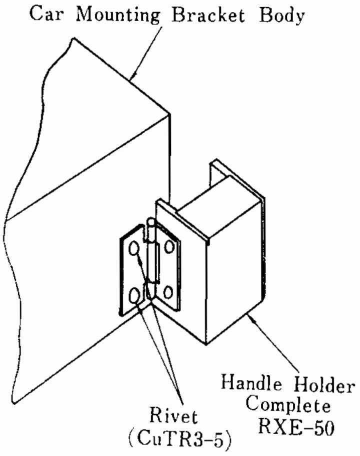

Car Mounting Bracket Body
Handle Holder Complete RXE-50
Rivet (CuTR3-5)

Fig. 23

CAR MOUNTING BRACKET-MODEL RD-883CA

Ref. No.	Part No.	Description
	CAPACITORS	
C68	NFSP-5T6	600PF, Spark Plate
C69	ECE-B15V1000	1000μF, 15WV, Electrolytic
C70	ECK-D5103P	0.01μF, 500WV, +100%, Ceramic Disc − 0%,
C71	ECK-D05103P	0.01μF, 50WV, +100%, Ceramic Disc − 0%,
	RESISTORS	
R47	ERD-14TK681	680Ω, ¼Watt, ±10%, Carbon
R48	ERD-1LZK101	100Ω, 1 Watt, ±10%, Carbon
R49	ERW-12LK2R7	2.7Ω, ½Watt, ±10%, Wire
	COIL AND TRANSFORMER	
L14	RLQ-Z421-1	Noise Filter Coil
T11	RLT-2R1	Output Transformer
	SWITCHES	
S19~S24	RSS-52	6V-12V Car Battery Source Selector Switch
S25, S26	RSS-44	Built in-EXT Speaker Selector Switch
	MISCELLANEOUS	
	RSF-2022	Fuse
	RVL-407	Neon, Lamp
	RJP-65	Plug, Polarity
	RJS-11	Socket, Polarity
	RJF-110	Holder, Fuse
	RJF-707-1	Jack, EXT Speaker (2 Req'd)
	RJF-3104	Jack, Car Antenna
	RJT-301-1	Terminal, EXT Speaker (2 Req'd)
	RJT-323	Terminal, Car Ground
	RUP-1453	Circuit Board, Multiconnector
	# 1151	Key
	RKC-7-2	Bracket, Antenna Change-Over Pin
	RKC-42	Insulation Plate, Antenna Change-Over Pin
	RKC-43	Antenna Change-Over Pin
	RUS-35	Spring, Antenna Change-Over Pin
	RMX-147	Insulation Washer, Antenna Change-Over Pin
	M3-6	Screw, Antenna Change-Over Pin Bracket M'tg. (2 Req'd)
	SW-3	Spring Washer, Antenna Change-Over Pin Bracket M'tg. (2 Req'd)
	RXE-50	Handle Holder Complete
	CuTR3-5	Rivet, Handle Holder (Complete) M'tg. (2 Req'd)
	RHR-917	Insulation Plate, EXT Speaker Jack (2 Req'd)
	N-7	Nut, EXT Speaker Jack M'tg. (2 Req'd)
	SW-7	Spring Washer, EXT Speaker Jack Mounting (2 Req'd)

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